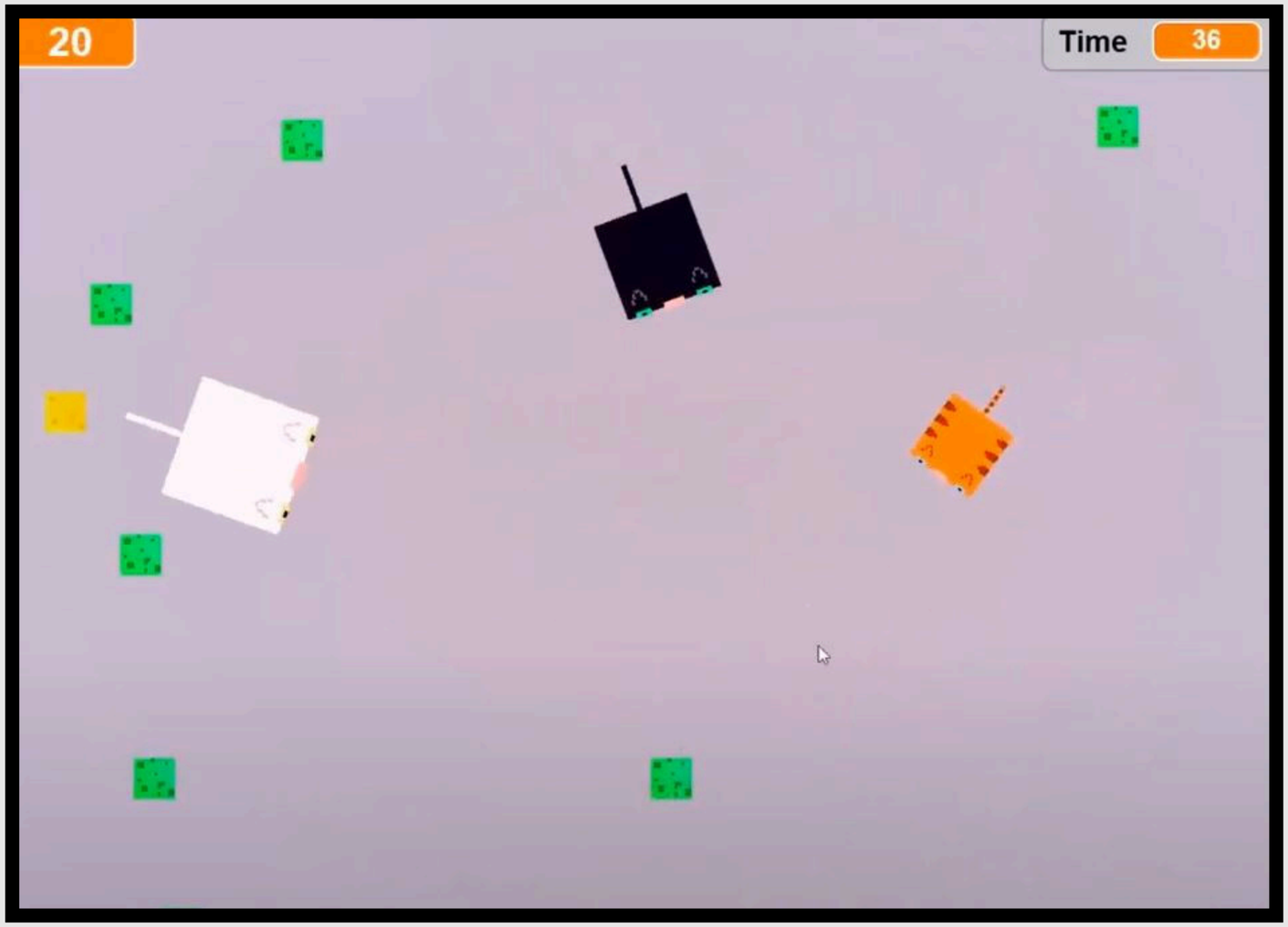
Cat and Mouse Game

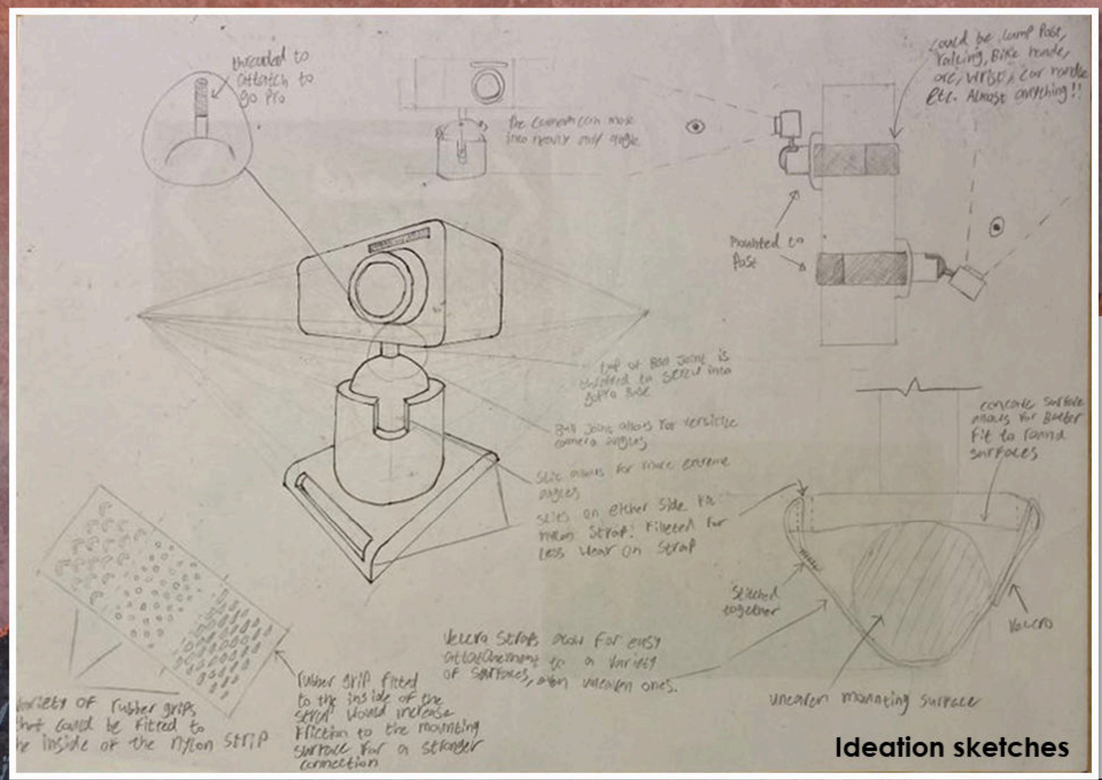


https://www.youtube.com/watch

GoPro Mount Project

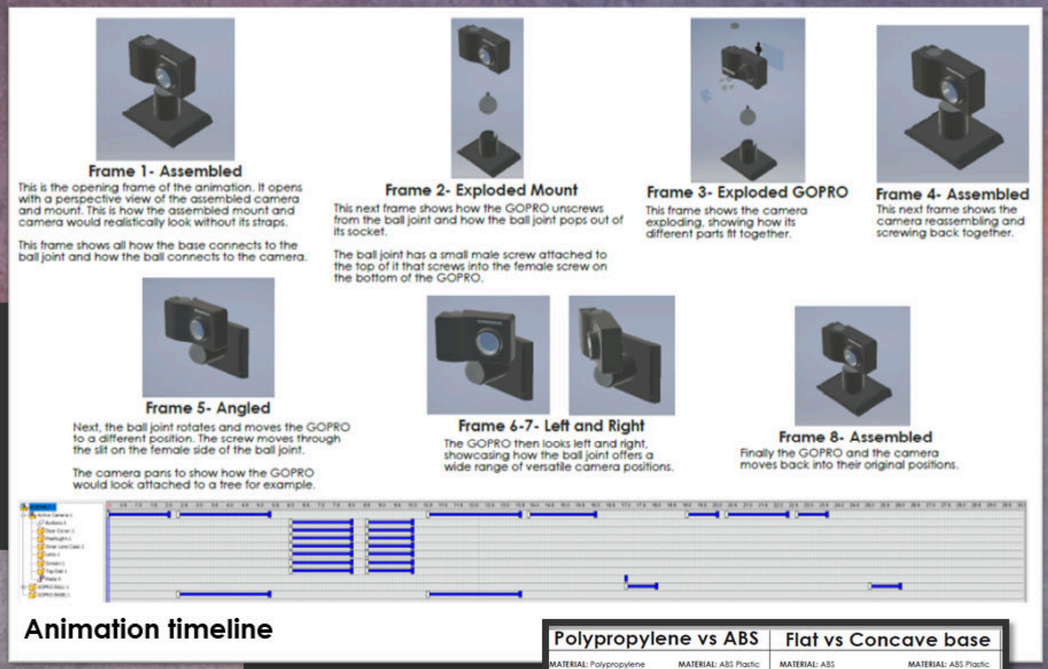
Advanced Higher Graphic Communication, August 2021

I was tasked to design a versatile and hard wearing camera mount to fit a GoPro action camera. I was to develop an innovative design, produce detailed orthographic sketches, stress test and create a realistic computer render.



Ideation sketches

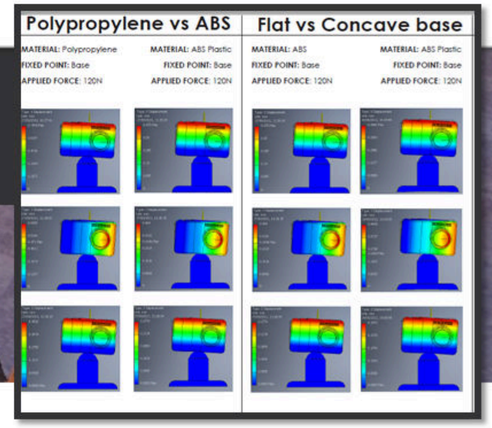
I created a short animation showcasing how the camera and mount fit together and move.

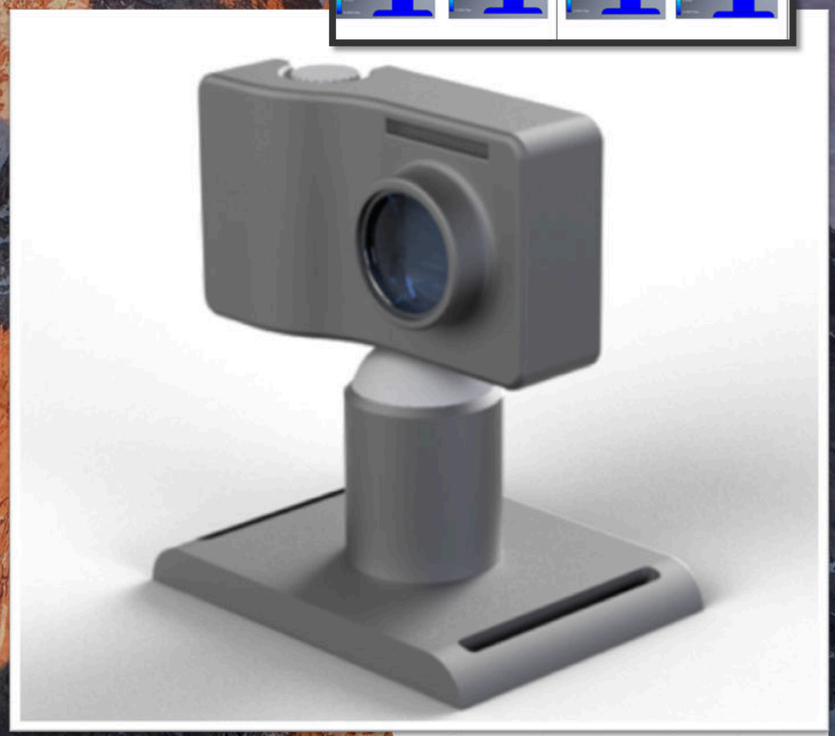


Animation timeline

- My design uses a ball joint to allow versatile camera angles.
- The slit on the base accommodates extreme 90 degree shots.
- I chose to use Velcro straps as they can be attached to almost any structure, including uneven surfaces, such as lamp posts and handlebars.
- Rubber grips on the inside of the Velcro straps increase friction on smooth mounting surfaces.

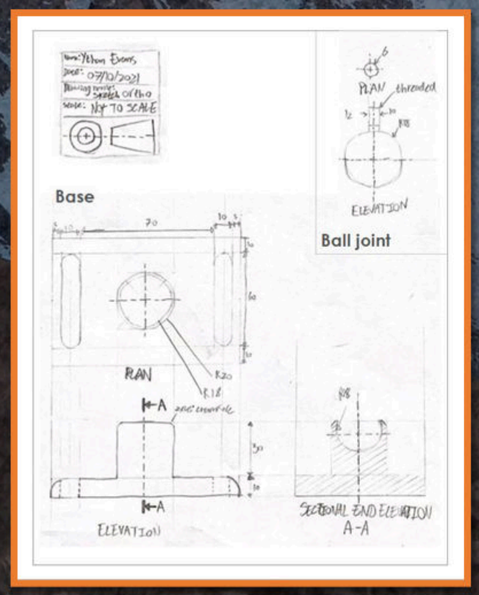
Stress simulations comparing materials and design options.

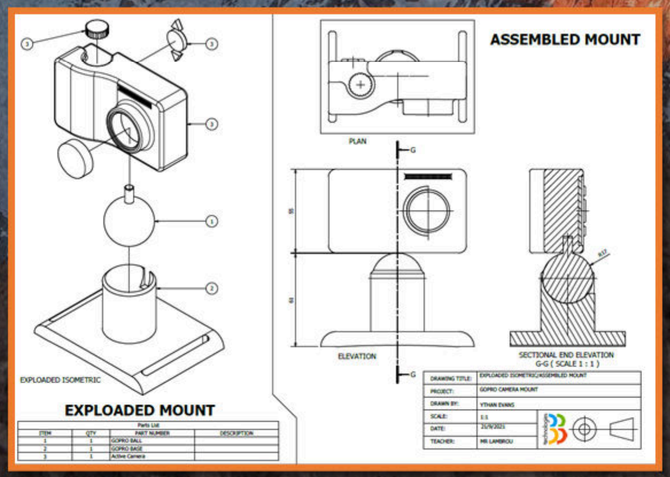




3D render of my final design

My preliminary orthographic sketches (left) and assembled digital orthographic (below).





Background: wallpaperaccess.com/mountain-macbook

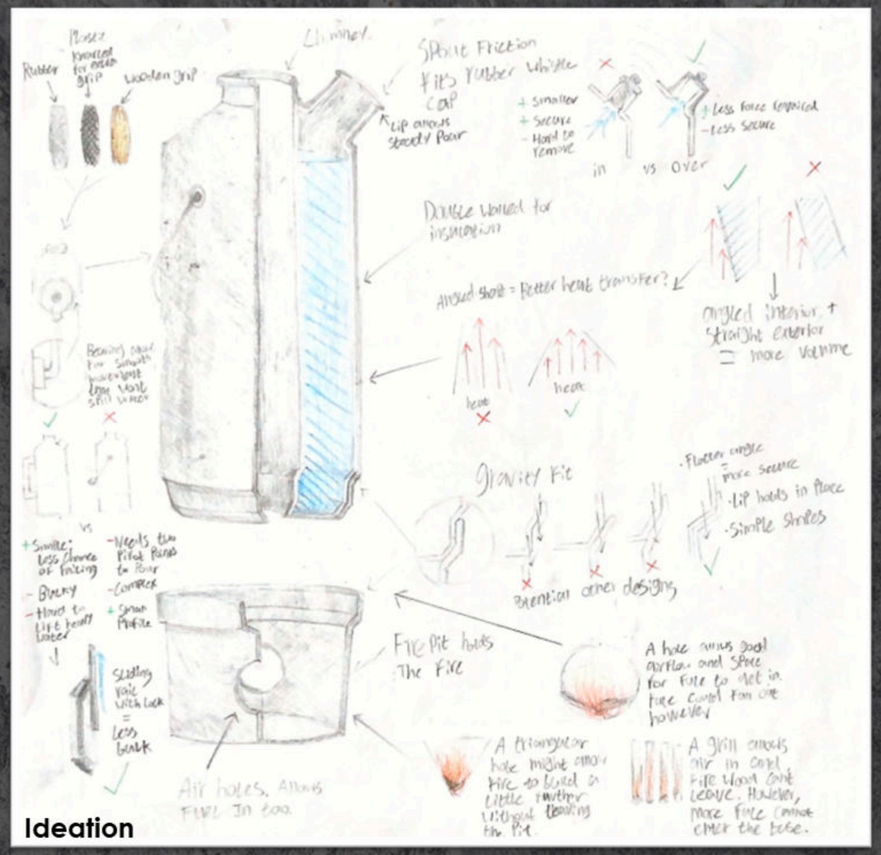
Storm Kettle Project

Advanced Higher Graphic Communication, January 2022

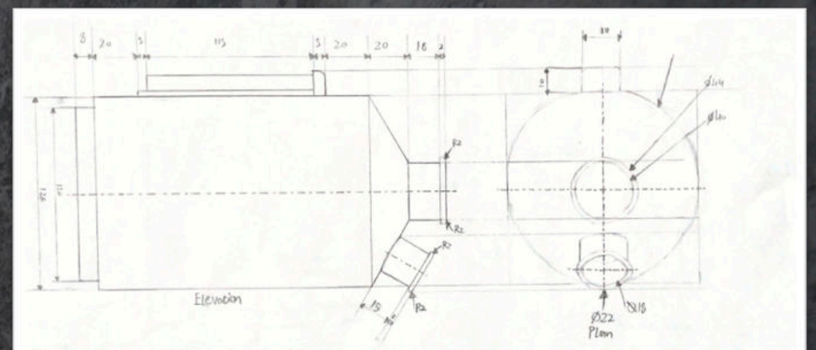
I created my own design for a storm kettle; a piece of survival equipment to safely and efficiently boil water in the outdoors.

My design has a removable C-shaped handle that slides onto a rail. This makes it safer compared to other similar kettles, while still being as compact.

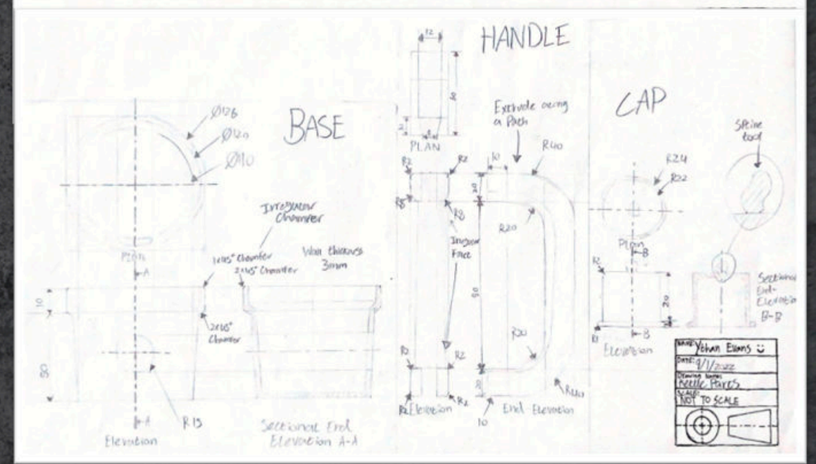
Research



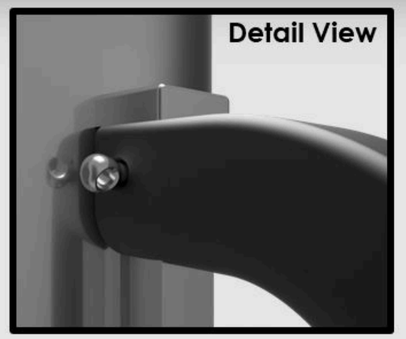
Ideation



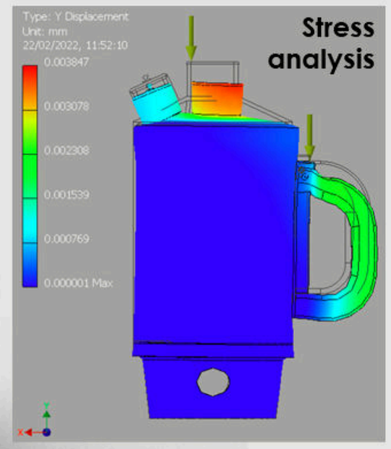
Orthographic sketches



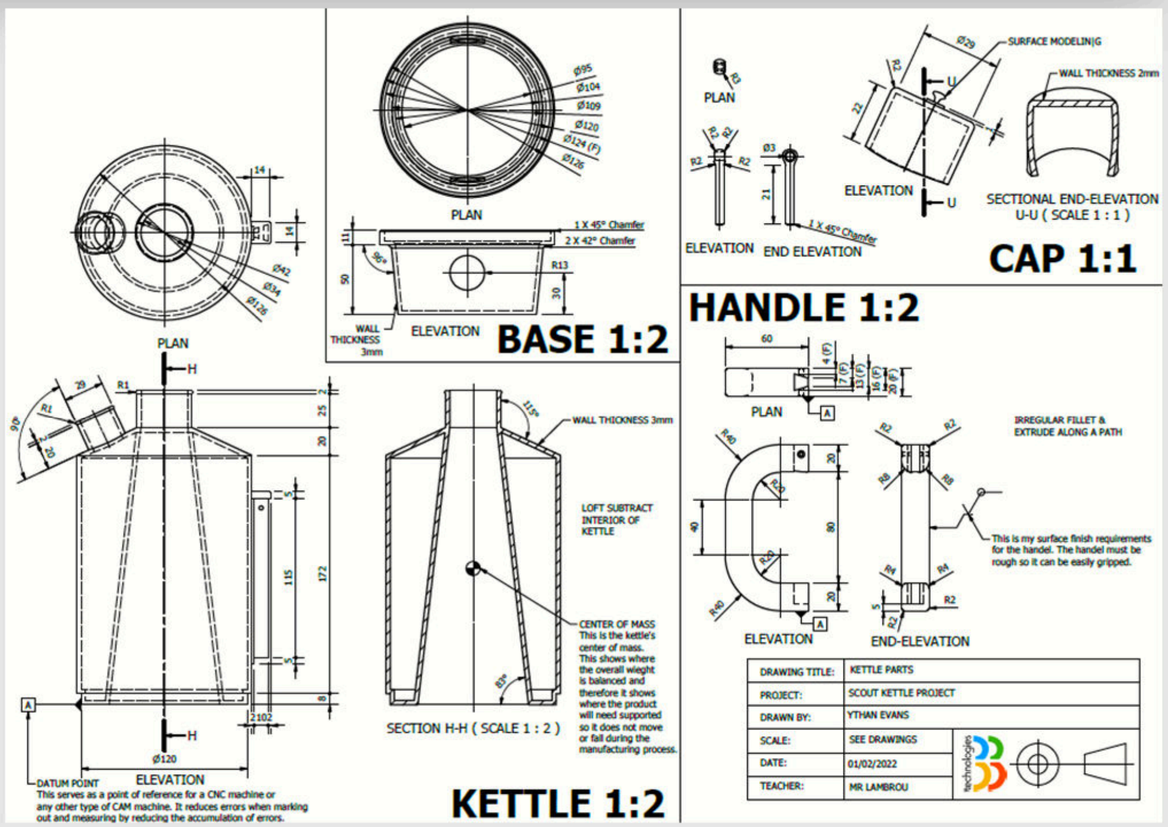
3D Renders



Detail View



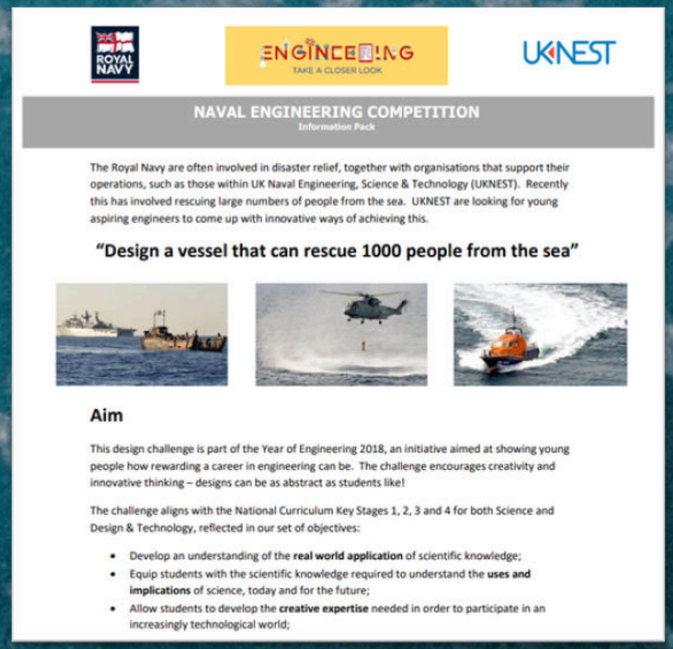
Stress analysis



Royal Navy/UKNEST Naval Engineering Competition Winner - 2018

In 2018, I participated in the UKNEST (Naval Engineering Science and Technology) national competition, which seeks creative solutions to real world problems. The challenge was to create a vessel capable of rescuing 1000 people from the sea. The competition was judged by industry professionals, with three age categories and three winners from each. I was thrilled to be the only Scottish winner, with my unique modular design.

The competition brief:



ROYAL NAVY

ENGINEERING
TAKE A CLOSER LOOK

UKNEST

NAVAL ENGINEERING COMPETITION
Information Pack

The Royal Navy are often involved in disaster relief, together with organisations that support their operations, such as those within UK Naval Engineering, Science & Technology (UKNEST). Recently this has involved rescuing large numbers of people from the sea. UKNEST are looking for young aspiring engineers to come up with innovative ways of achieving this.

"Design a vessel that can rescue 1000 people from the sea"

Aim

This design challenge is part of the Year of Engineering 2018, an initiative aimed at showing young people how rewarding a career in engineering can be. The challenge encourages creativity and innovative thinking – designs can be as abstract as students like!

The challenge aligns with the National Curriculum Key Stages 1, 2, 3 and 4 for both Science and Design & Technology, reflected in our set of objectives:

- Develop an understanding of the **real world application** of scientific knowledge;
- Equip students with the scientific knowledge required to understand the **uses and implications** of science, today and for the future;
- Allow students to develop the **creative expertise** needed in order to participate in an increasingly technological world;

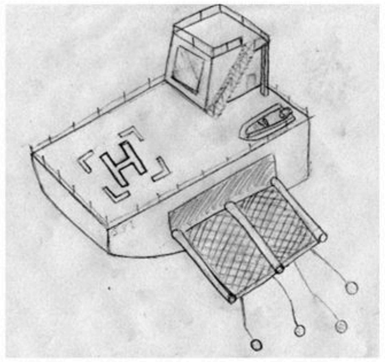
"In launching this competition, both the Royal Navy and UKNEST are keen to galvanise school children up and down the country into producing a creative and innovative design"

Captain Matt Bolton Royal Navy

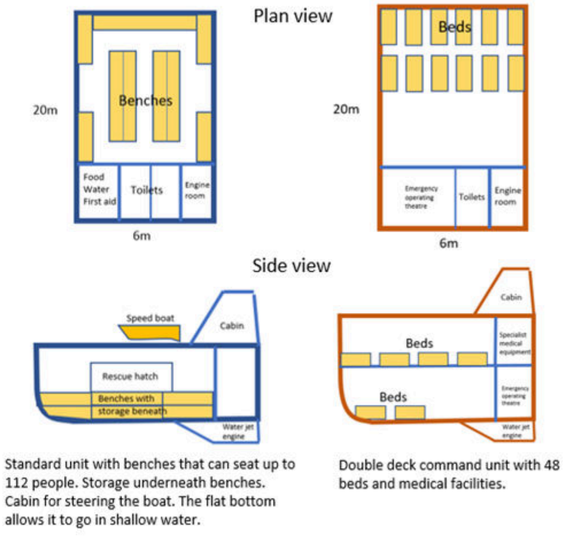
SS Legion

Modular vessel designed to rescue 1000 people at sea

A Roman legion was a group of around 1000 soldiers, which divided into 10 groups (cohorts) for battle.

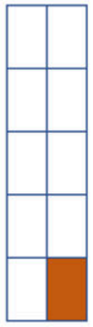


Individual rescue unit with hatch on each side with optional inflatable net to rescue people. There is also a speed boat that can be used to help injured people in the water.

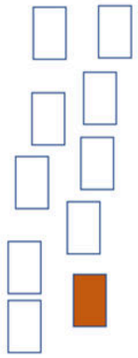


Standard unit with benches that can seat up to 112 people. Storage underneath benches. Cabin for steering the boat. The flat bottom allows it to go in shallow water.

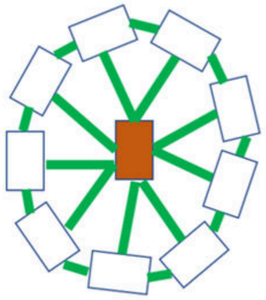
Double deck command unit with 48 beds and medical facilities.



- Vessel made up of 10 individual steel units. In this form it can quickly get to where it is needed.
- The units are joined together by electro magnets so they can be held together securely and released quickly.
- 9 rescue units measuring 6m by 20m can each hold up to 112 people.
- 1 command unit that steers the vessel and provides central medical support after deployment.
- Each unit has a water jet propulsion unit. These work together to propel the vessel.
- Identical modular design is cheaper to manufacture and maintain.
- Units can be combined in different formations.

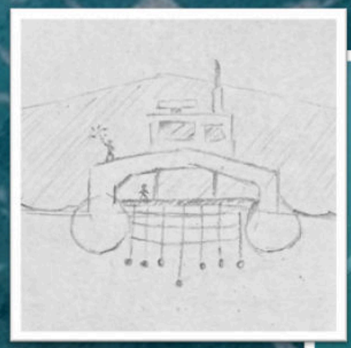


- In rescue mode the units can separate to quickly reach people who need to help.
- The water jet propulsion unit (instead of a propeller) minimises risk of injury to people in the water. It also makes the boat easier to steer as it does not need a rudder.
- Each unit has its own first aid, food and water supplies.
- The engine room in each unit provides heat to the passenger area.
- Fuel is stored in a compartment in the hull.

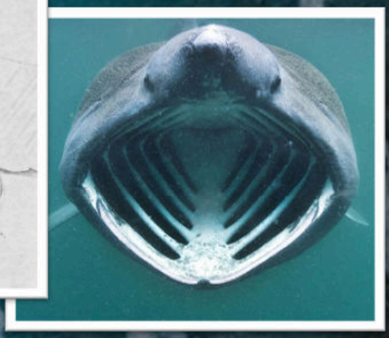


- The individual units can be arranged around the central command module which contains specialist medical supplies, an operating theatre and doctors.
- Connected modules are more stable.
- Inflatable walkways connect the modules to each other and the central command module, allowing people and supplies to move around. It also enables medical help to quickly reach those in most need.
- Helicopter pads on each unit allow other rescue methods.

Ythan Evans – S3
Bell Baxter High School



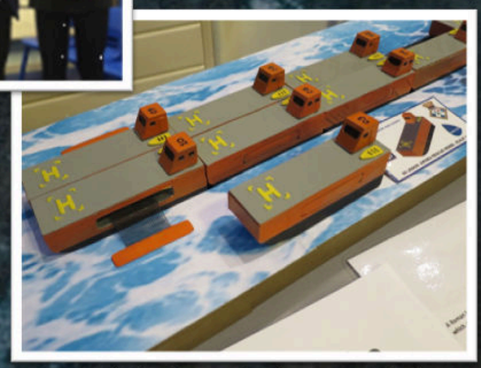
Alternate design idea



Another one of my design ideas was a catamaran which scooped people up like a basking shark, but with this method it would be difficult to efficiently rescue spread out survivors.

My final design was a modular vessel that could split up on arrival in order to minimise the rescue time, then reconfigure to share resources and medical facilities.

Commander Dave Pinder made the presentation



A model of my design made by the Royal Navy

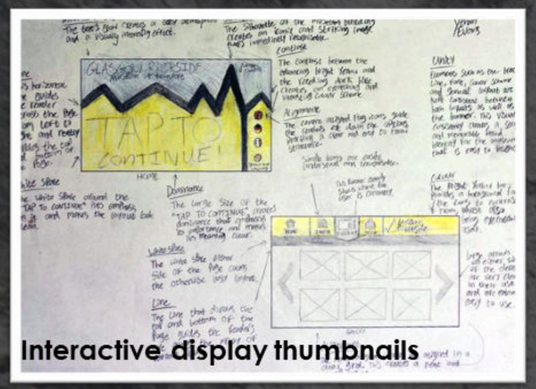
Riverside Museum Project

Advanced Higher Graphic Communication, September 2021

The design brief for the Riverside Museum Project was:

- Design all the graphic elements for a new interactive visual media display to welcome visitors to the museum and provide answers to frequently asked questions
- Design an accompanying pull-up display banner.
- The interactive display must include an animation.

The Glasgow Riverside Museum was designed by architect Zaha Hadid.

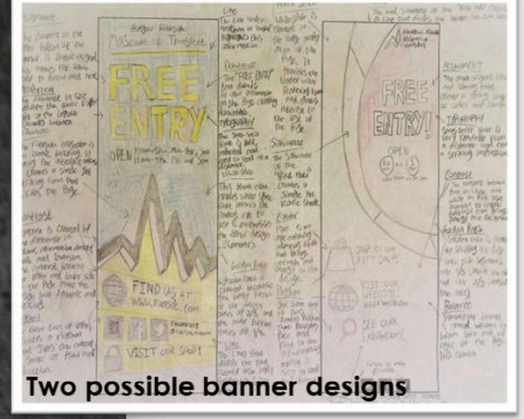


Interactive display thumbnails

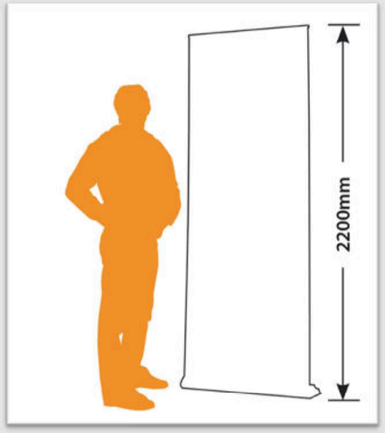
I created an animated gif of an earlier version to demonstrate the transition between screens 1 and 2 of my design.

In my final version, I changed the text to lower case to improve accessibility.

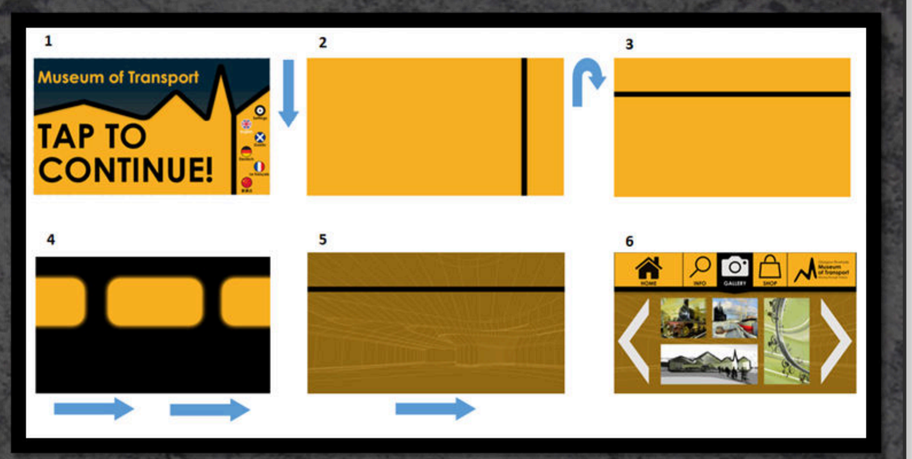
Screen 1



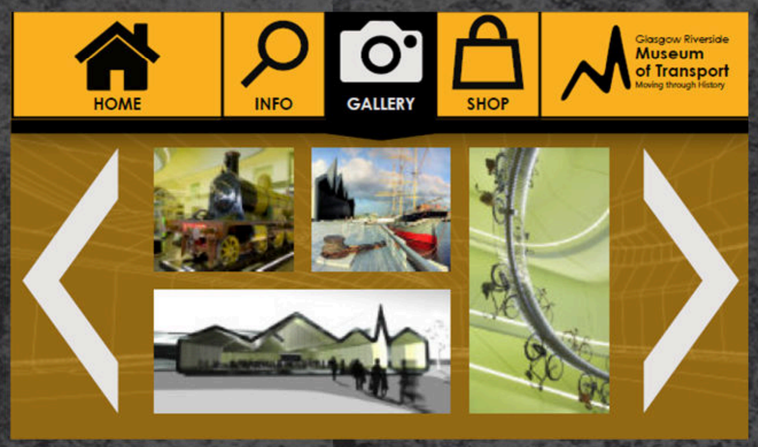
Two possible banner designs



For the banner, I chose a warm, advancing yellow and a cool, receding dark blue, so it would be easy to read and to make the museum seem inviting.



Display transition gif sequence



Screen 2

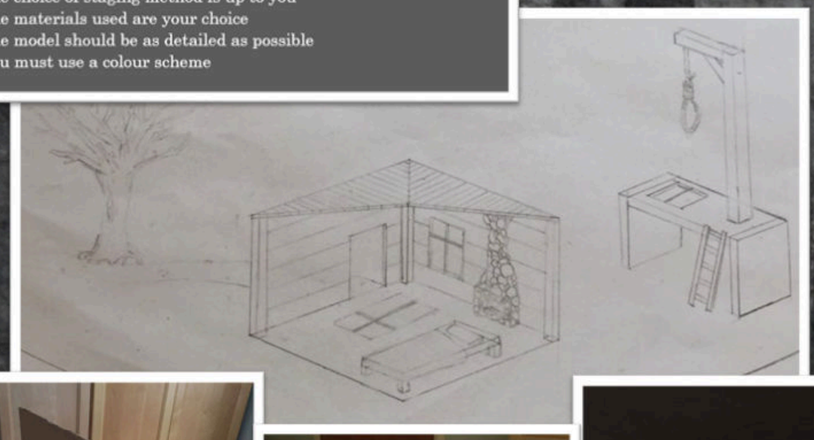
Pull-up Banner 800x2200mm

Arthur Miller 'The Crucible' Model Set

NPA Technical Theatre lockdown task, June 2020

Brief

- Create a model for a set design
- Your design is for a new production of 'The Crucible'
- If you are unfamiliar with the play, a copy of the script is provided. Any further research is your own responsibility
- Your design must be for a composite set (as there are multiple locations within the play)
- Your set should be approximately to scale
- Include a model figure to show scale
- The choice of staging method is up to you
- The materials used are your choice
- The model should be as detailed as possible
- You must use a colour scheme



I sketched out a rough design of my set. It initially had full walls, an overhanging roof for a section of the house, a hearth, a path, and was on a square base.

I used cardboard and masking tape to make the stage model freestanding. (29cm high, 54cm wide, 31cm front to back).

To plan my layout in 3D space I used a sheet of paper and roughly sketched the floorplan. At this point I realized that a square based house would block sight from either far side of the audience, so I changed my design to a wider angled base.

I printed out tree silhouettes on a white background and spray painted the stage floor black.

I realised having full walls and a partial roof section on the house would block line of sight, so I changed it to have rafters and shorter stepped walls.

I printed and cut out little Puritan people for realistic scale before setting to work on creating furnishings. I used natural wood and neutral colours to make the set feel bleak. There is simple wooden cladding on the walls and plain furniture to highlight the Puritan lifestyle.

For set changes, only the furniture needs to be changed or moved. This allows set changes to be quick and easy. For the jail house scene, the window and door are swapped for barred ones.

The house's window would have a stage light shining through the back to cast a shadow of the cross, highlighting the religious themes of the play.

Here are some examples of colored lighting being used on the set. I kept the background black and white for the trees to absorb light and the background to reflect it e.g. when the play refers to the sinister sunset.

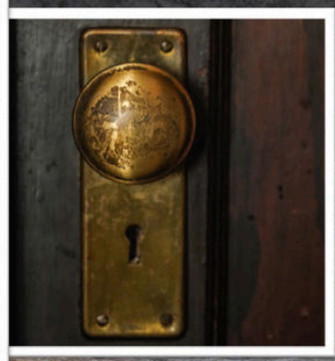
Background: shutterstock.com

Frankenstein Prop Gun

NPA Technical Theatre task, June 2021

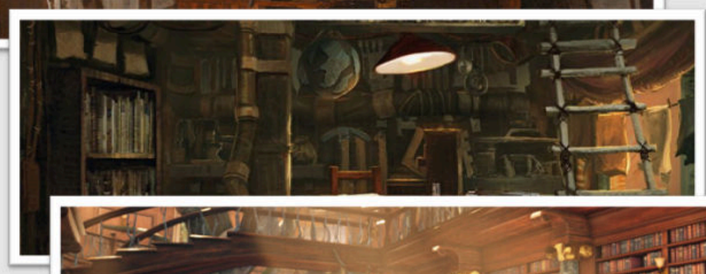
My brief was to design and create a prop for Act Two of Rona Monro's play 'Frankenstein'.

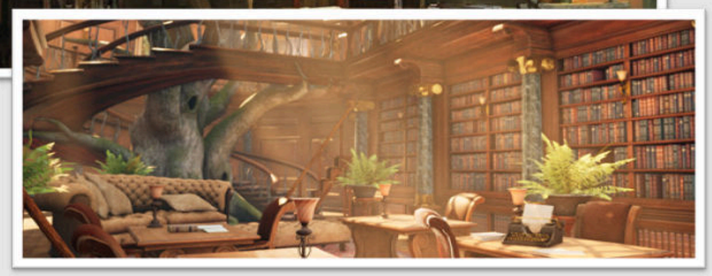
I chose to make Walton's gun (a flint lock pistol) to challenge myself and expand my wood working and artistic skills.



Frankenstein is set in 17th century Switzerland. During this period, guns used a flintlock firing mechanism.

Walton's gun would have led a long and hard life, bearing many scars from its previous use.





After applying wood stain, I weathered the gun by rubbing it in gravel. I made a dark wash with paint and shoe polish to soak into the blemishes and create a grimy, weathered look. Lastly, I used beeswax to create a finish with a dull sheen to it.

I sanded the 'metal' parts and applied a grey primer coat. I used silver and gold spray paint for the steel and brass. I applied shoe polish to create a tarnished effect and sealed it with clear coat spray paint.

I created an accurate representation of the firing mechanism, inserting a pin so the hammer rotates, enabling the illusion of priming the gun. Finally, I used epoxy resin to glue all the parts of the pistol together.

Using wood reclaimed from old drawer fronts, I used a printed scale image of a flintlock pistol to cut out two blanks. After gluing and screwing them together to get the right thickness, I chiselled and sanded it into shape. I used PVC pipe to fashion a barrel and trigger. Rather than cutting out a groove to house the barrel, I cut out an L shape that would sit on top, giving the impression of a full barrel.

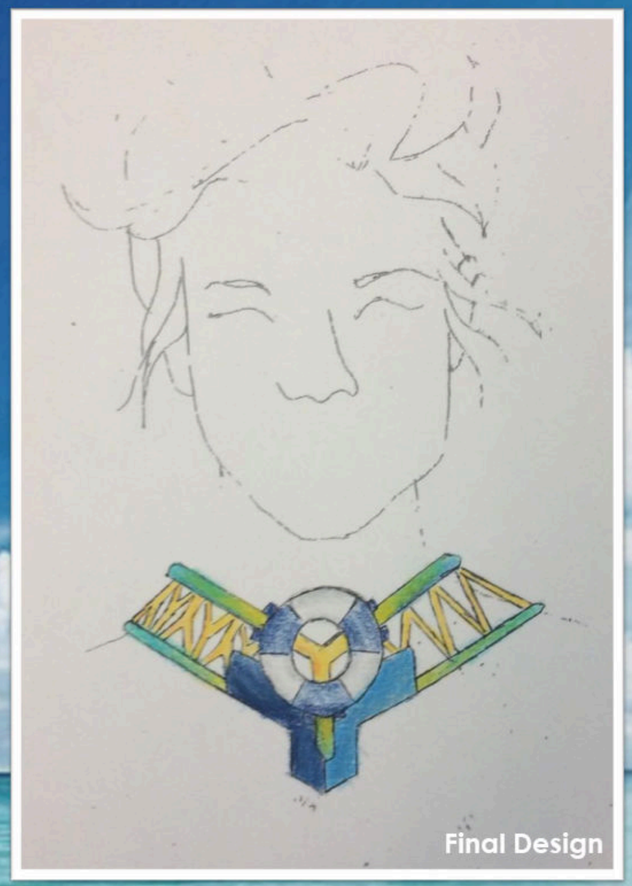
Working with limited materials and tools to meet the brief was a creative challenge and ended up being a lot of fun.

Seaside Jewellery

Higher Art and Design, 2022

As part of my Higher Art and Design portfolio, I am currently working on creating jewellery designs based on seaside structures, including shells, oil rigs and coastal infrastructure.

I have created various designs based on shapes I have abstracted from my mood board. I have then developed these, creating 3-D samples with a variety of materials such as modelling clay, card and bamboo.



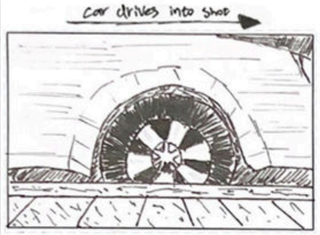
Film Storyboard Excerpt

January 2022

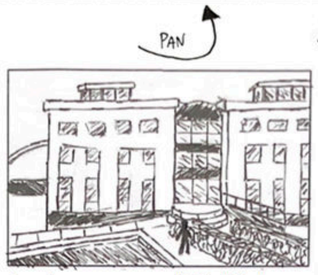
Recently, I collaborated with a group of friends to make a short spy film for their Higher Media project. The director and I discussed our ideas for each shot's composition while I roughed out the storyboard.

Filming is now underway. Opposite are some stills from the film.

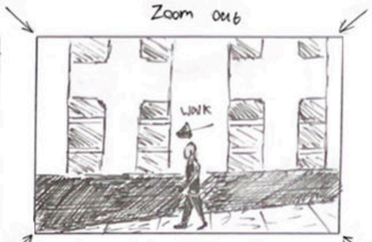
Film storyboard



1. Fade from black. Sinister drone sound turns to car brake noise. Car door opens. Footsteps.

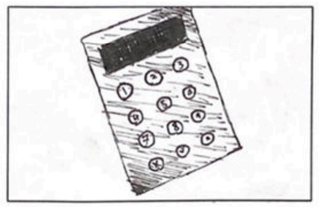


2. Camera pans around behind Markov and follows him, remaining zoomed out.



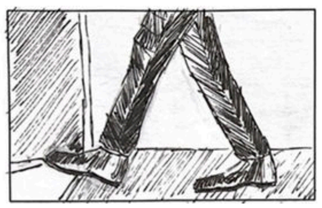
3. Camera static as Markov walks downwards. Camera zooms out to show Agent Kingsley step into frame.

4. Dutch angle shot. Markov enters the building through side door.

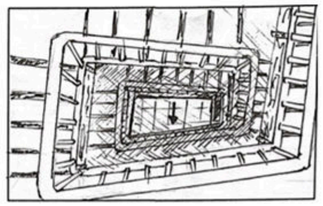


5. Markov enters a code. Dutch angle.

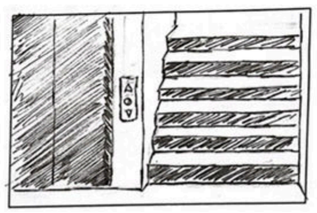
6. Doors swing open. Markov pauses.



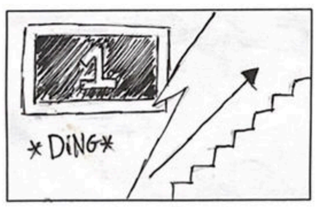
7. Markov strides through door. The agent's foot suddenly jams door as he silently walks in after him.



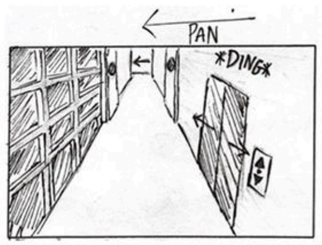
8. Shot down large staircase. Kingsley stalks below.



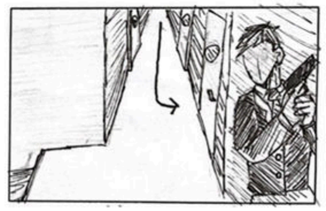
9. Markov enters the lift. Kingsley arrives shortly afterwards and runs up stairs.



10. Rapid cuts between lift numbers going up and Agent Kingsley running up stairs. Rising tension.

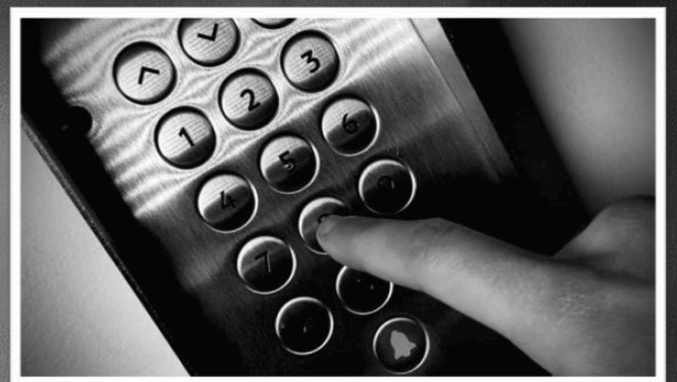


11. Tension cut by final ding. Markov steps out of lift. The agent quickly ducks into cover.



12. Kingsley is hidden behind cover. Markov walks down corridor. Tension builds as the agent thinks he's been found. Markov enters room.

Shot 1



Shot 5

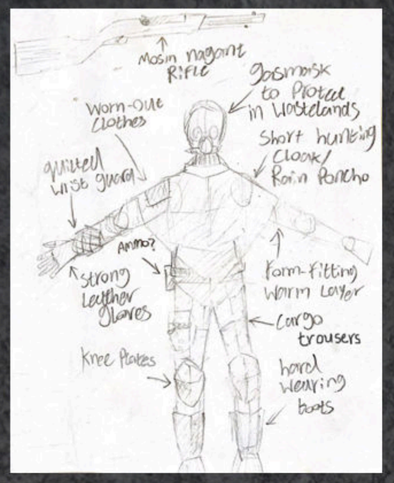
Shot 10

Shot 11

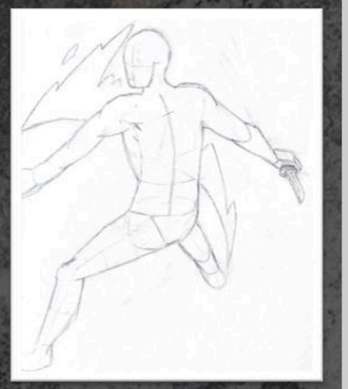
Background: wallpaperbat.com/city-skyline-wallpapers

Character Development

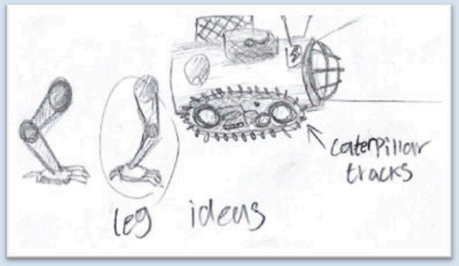
Sketch book extracts, 2022

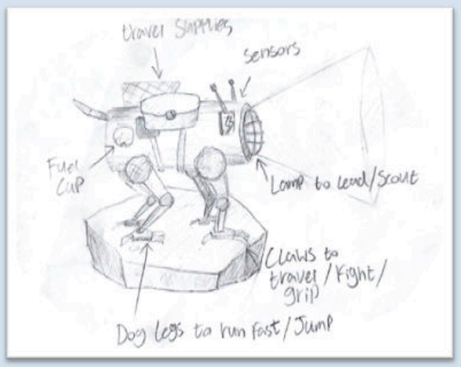


I had the idea of a post-apocalyptic wasteland ranger looming through toxic white mist and the character evolved from there.

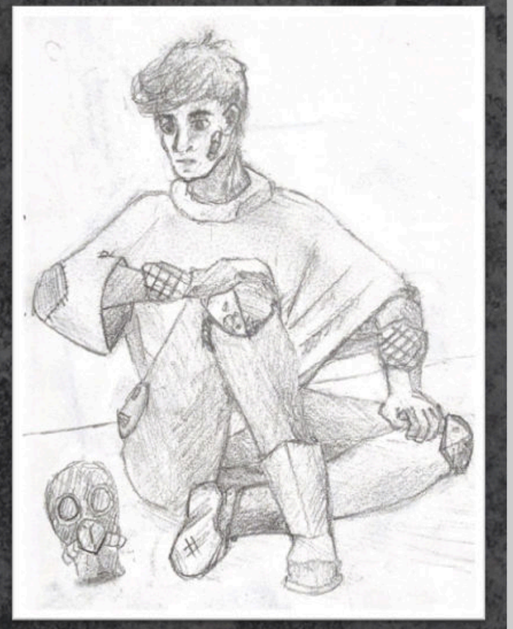


Costume variations and weapon possibilities

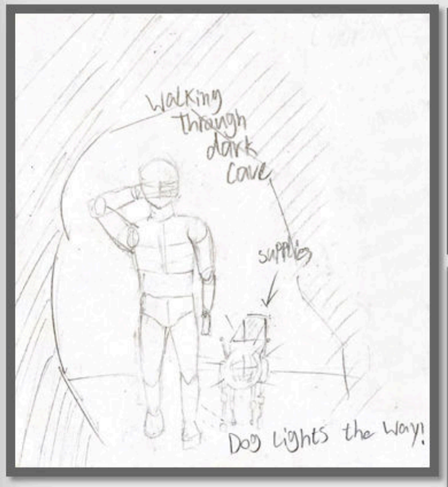




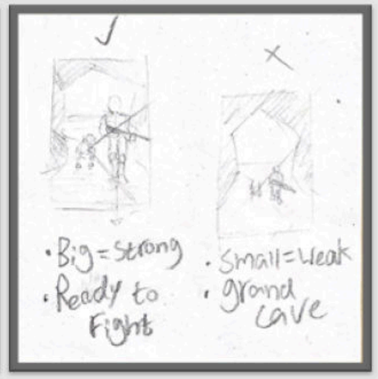
I liked the idea of an animal companion, but a horse couldn't survive the toxic wastes. I decided to experiment with a robot dog (inspired by Boston Dynamics) and further developed this idea.

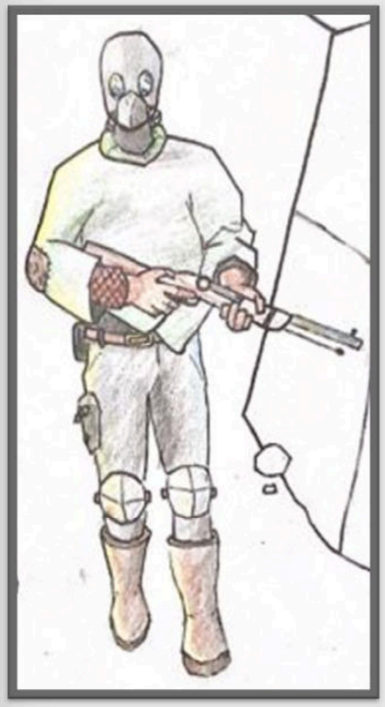


The concept of a wasteland ranger who preferred the company of his robot dog over others was interesting to me.



I sketched my initial composition idea, then experimented with three different variations.



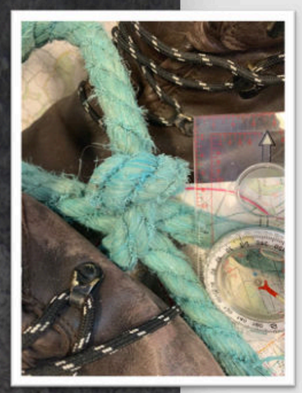


I experimented with coloured pencils, but ultimately decided to use alcohol markers for vibrancy and ability to capture light.

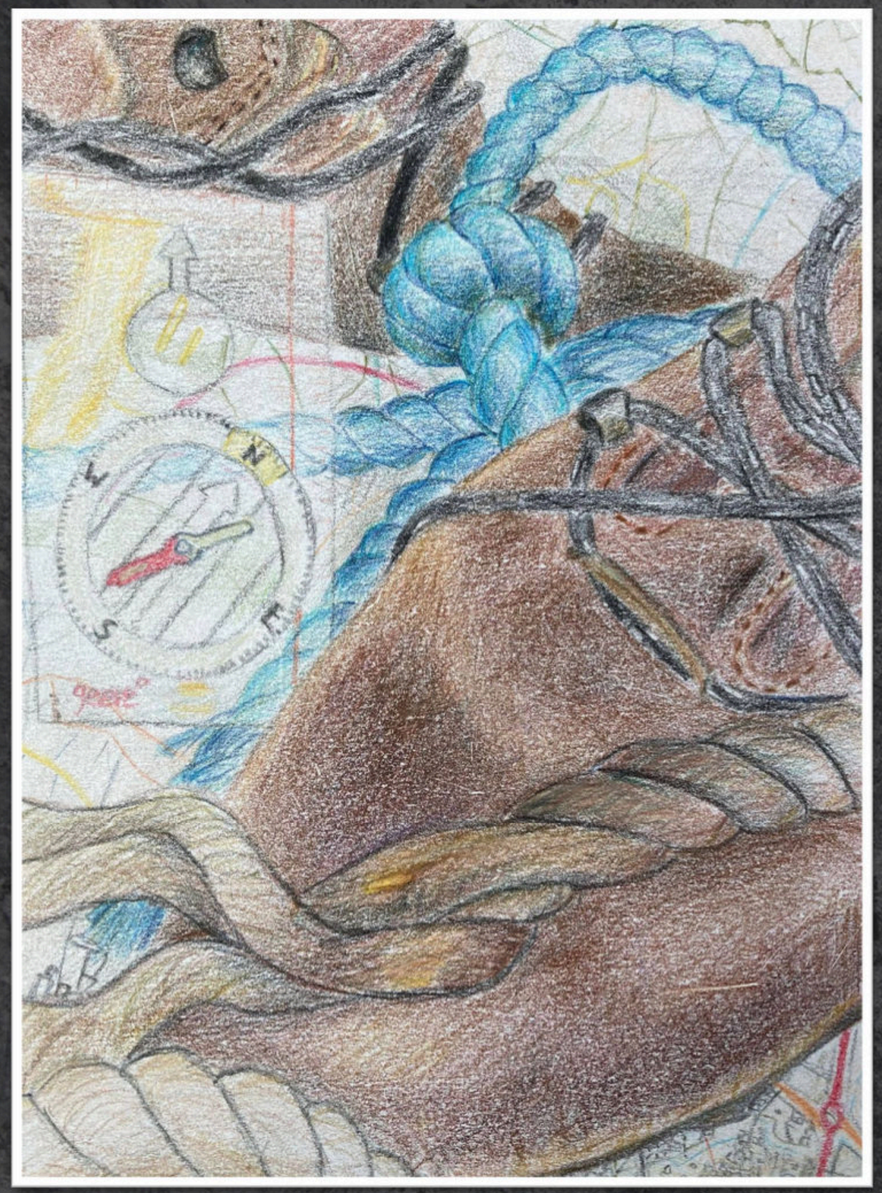
Boot Studies

Higher Art and Design, January 2022

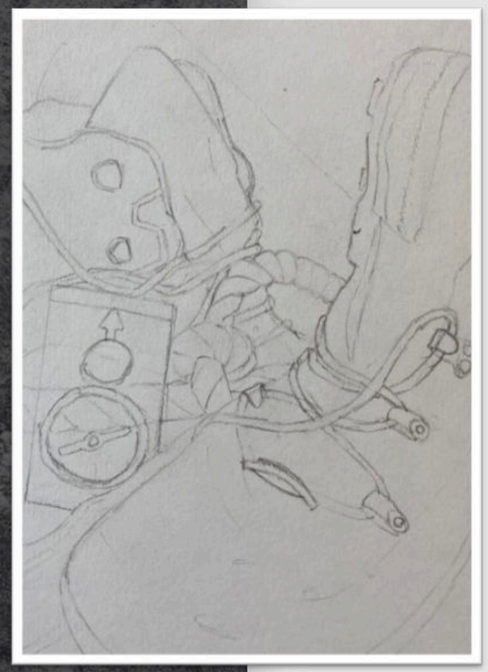
In my spare time I enjoy hill walking and the outdoors. Recently, my grandpa gave me his walking boots as he can no longer use them himself. My grandpa also loves to draw, so now I'm following in his footsteps.



Experimenting with composition



Coloured pencil, A5

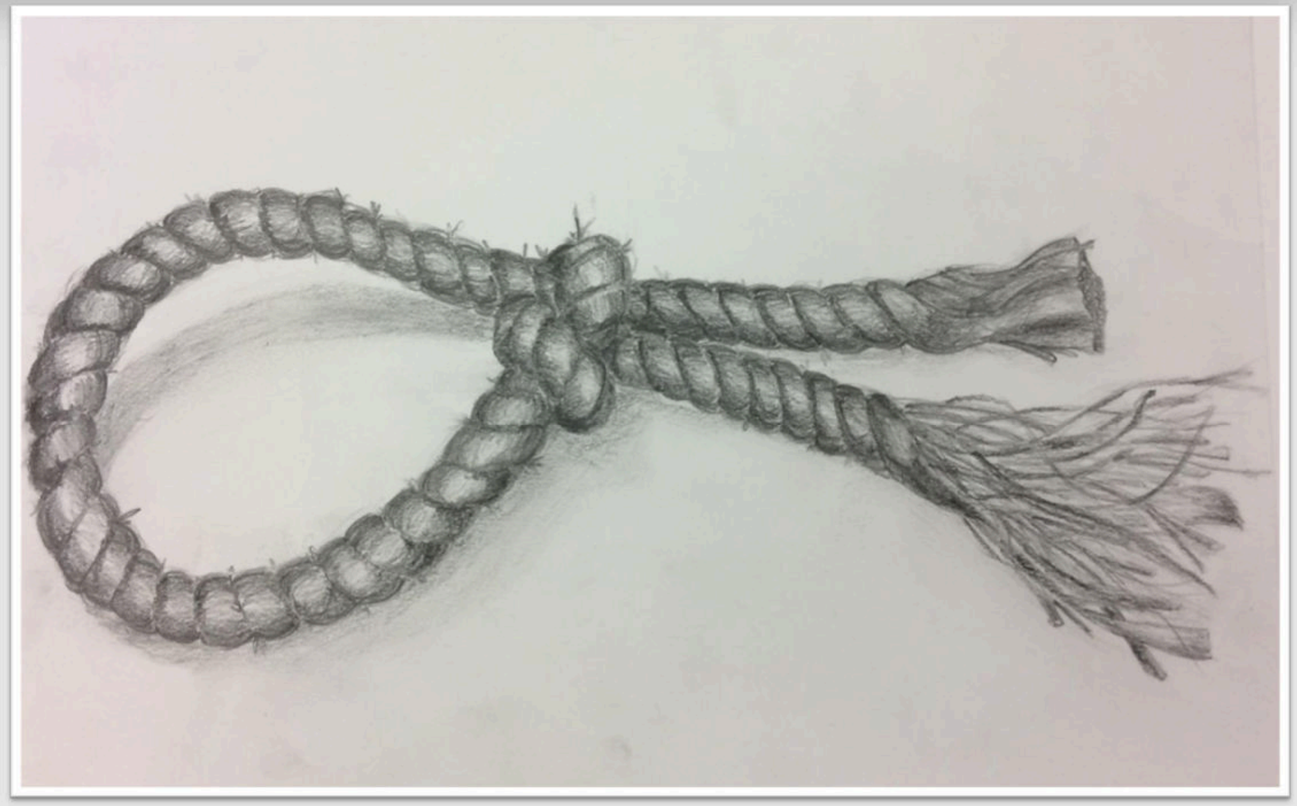


Biro pen - initial pencil sketch

Biro pen, A5

Still Life Sketch

Higher Art and Design, September 2021



Pencil/Coloured Pencil, A4